**PREDICTION, PREVENTION, AND THE “HYGIENE HYPOTHESIS”**

**THE CANADIAN ASTHMA PRIMARY PREVENTION STUDY: OUTCOMES AT 2 YEARS OF AGE**


*Purpose of the Study.* To determine the effectiveness of a multifaceted intervention program in the primary prevention of asthma in high-risk infants.

*Study Population.* Subjects were children (n = 549) born between October 1994 and August 1996, classified as high-risk for development of asthma on the basis of family history.

*Methods.* A prospective, controlled clinical trial identified mothers in their third trimester of pregnancy and randomized each mother into either the multifaceted-intervention group (n = 278) or control group (n = 267). The intervention program was implemented during the first year of life and included decreasing allergen (dust mite and pet) and environmental tobacco-smoke exposure, encouraging breastfeeding, and delaying introduction of solid foods. The control group did not receive specific intervention education. Home visits conducted during the third trimester, at 2 weeks, and at 4, 8, 12, 18, and 24 months of age assessed health, demographic, and home characteristics, and dust samples were collected to quantify house dust-mite and cat-allergen levels. Infants in each group were evaluated and prick skin-tested for common allergen exposure and development of atopy. Increased exposure in the first year of life to aeroallergens, food allergens, and environmental tobacco smoke for children deemed to be at high risk for asthma, reduction in prevalence and morbidity of childhood asthma.

*Results.* In terms of intervention efficacy, there were significant differences in cat-allergen exposure (with no change in prevalence of pets) and day care enrollment between the groups. Asthma was characterized as the sum of possible and probable asthma diagnoses. At 2 years, 40 of 246 (16.3%) intervention children and 53 of 230 (23%) control children were classified as asthmatic. There was a significant reduction in persistent asthma (children meeting criteria for asthma at both 12 and 24 months of age), with only 4.9% of the intervention group versus 11.3% of the control group characterized as having persistent asthma. There was no difference between the groups in regard to recurrent cough and no difference in incidence in the first year of life of recurrent wheeze. However, at 2 years, there were significantly fewer children in the intervention group with recurrent wheeze (1%) versus the control group (3.5%). The prevalence of atopy at 2 years was not different between the intervention (15.6%) and control (13.7%) groups.

*Conclusions.* The multifaceted intervention program, which focused on decreasing exposure in the first year of life to aeroallergens, food allergens, and environmental tobacco smoke for children deemed to be at high risk for development of asthma, was successful in significantly reducing the incidence of asthma at 2 years of age.

*Reviewer’s Comments.* This study demonstrates that, in infants at high risk for developing asthma, reduction in allergen exposure and environmental modifications in the first year of life can significantly affect disease development and progression. Public health programs targeting these interventions may greatly impact the increasing prevalence and morbidity of childhood asthma.

**FAMILY HISTORY, DUST MITE EXPOSURE IN EARLY CHILDHOOD, AND RISK FOR PEDIATRIC ATOPY AND ASTHMA**


*Purpose of the Study.* A birth cohort of a group of patients with substantial environmental burden of house dust mite were evaluated to determine the risk of exposure related to development of allergic disease and asthma.

*Study Population.* The study population was a part of the Childhood Asthma Study of the Health Maintenance Organization in a geographically defined area. The children (835) were born at term between 1987 and 1989 and were then followed from birth.

*Methods.* The mother was interviewed during her pregnancy and then followed after birth until 6 to 7 years of age. The patients had dust collected from their bedrooms that was analyzed for major allergens from house dust mites. Prick skin tests, specific serum IgE measurement, and methacholine challenge were performed.

*Results.* The only positive association was for bronchial hyperresponsiveness for house dust allergen levels of >2 µg/g of dust (odds ratio [OR]: 0.62; P < .05) and >10 µg/g of dust (OR: 0.53; P < .065). With a parental history of allergy and asthma, there was an association between a positive D-e skin test (OR: 2.09; P < .05) and a d-e allergen level of >10 µg/g. The inverse was true for children without a parental history. D-e exposure of >10 µg/g was associated with a decreased risk for recurrent atopic asthma in children with a parental history of allergic disease but without increased risk if there was no parental history.

*Conclusions.* Parental history is an important independent variable in the relationship between early house dust exposure and development of atopy. Increased exposure in infancy is associated with a high risk of sensitization in the presence of positive parental history but is protective in children of parents without a history of atopic disease.

*Reviewer’s Comments.* This is a very important study. It helps put into better perspective the “hygiene hypothesis.” The strong genetic determination of allergic disease is reinforced. The concept is particularly important to understand to make appropriate observations from the literature and translate this to counseling regarding their child’s expected clinical course.

**PERINATAL PREDICTORS OF ATOPIC DERMATITIS OCCURRING IN THE FIRST SIX MONTHS OF LIFE**


*Purpose of the Study.* To prospectively investigate perinatal predictors of atopic dermatitis during the first 6 months of life.

*Study Population.* Study subjects were 1005 urban and suburban mothers and their infants enrolled in Project Viva, based in the greater Boston, Massachusetts, area. The
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